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# Towards a Floquet theory of periodically driven superconductors

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We use Floquet theory to describe dynamics and losses of superconductors under extremely high fields and frequencies.Periodically driven superconductors at high fields provide an unexplored theoretical territory relevant in modern applications (lower cryogenic costs for particle accelerators), allowing for experimental validation using Superconducting Radio Frequency (SRF) cavities. We use the Floquet formalism to solve the Cooper problem in the limit of strong AC fields (in which linear-response analysis does not apply), and discuss preliminary results combining BCS and Floquet theories to develop an experimentally-verifiable new approach for periodically-driven superconductors that provides explanation and control of dissipation.

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